Knowledge, Attitudes, and Practices Related to Maternal Health in Bla, Mali: Results of a Baseline Survey

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Abstract

This report presents the results of a baseline survey conducted in the rural district of Bla in Mali to investigate levels of knowledge, attitudes, and practices related to maternal health care among women of reproductive age and corresponding household heads. The main objectives of the study were to guide the development of an information, education, and communication (IEC) intervention and to serve as a baseline for future comparison after the implementation of the IEC intervention.

The survey results show a significant discrepancy between perceived importance of maternal health services (prenatal, delivery, and postnatal) and actual use among women in Bla. General knowledge about maternal health care, including the number and timing of antenatal and postnatal visits and danger signs before, during, and after delivery, was moderately high. The main reasons cited for non-use of prenatal and postnatal care were lack of need and the costs related to visiting the health center. The findings suggest that both knowledge and financial constraints affect women's health seeking behavior. The survey also found that household heads and husbands are the primary decision makers regarding pregnancy-related care, and that they tend to have surprisingly similar perceptions of and knowledge about maternal health care as the women interviewed. However, financial and information constraints may affect the ability of household heads to make care seeking decisions that are best for women's health during and after pregnancy.

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Acronyms

IAG	Inter-Agency Group
IEC	Information, Education, and Communication
IPE	*Initiative pour l'Equité* (Equity Initiative)
KAP	Knowledge, Attitudes and Practices
MHO	Mutual Health Organization
PHR*plus*	Partners for Health Reform*plus* Project
USAID	United States Agency for International Development

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Executive Summary

In April 2003, the USAID-funded Partners for Health Reform*plus* (PHR*plus*) project conducted a baseline survey in the rural district of Bla in Mali to investigate levels of knowledge, attitudes, and practices (KAP) related to maternal health care. The main objectives of the study were to guide the development of an information, education, and communication (IEC) intervention and to serve as a baseline for future comparison after the implementation of the IEC intervention.

The IEC intervention is the second of two interventions implemented in Bla with the assistance of PHR*plus* aimed at increasing utilization of health services. In 1999, the Equity Initiative in Mali, under the predecessor Partnerships for Health Reform project, conducted a survey to examine the factors affecting access to and use of health services in two pilot sites in Mali: the rural district of Bla in the region of Ségou and the urban commune of Sikasso in the region of Sikasso. Since the completion of the 1999 study, using the survey results as a base, the Equity Initiative has been working with communities in Bla and Sikasso to develop and implement strategies to address barriers to care identified through the survey. One of the interventions that the community selected is community-based health insurance, known as mutual health organizations (MHOs), as a means of making health care more financially accessible to the population. MHOs have been enrolling members in selected areas of Bla and in Sikasso since 2002.

In 2003, the PHR*plus* project decided to go one step further in addressing barriers to utilization of maternal health care in Bla by implementing an IEC intervention in select areas. The IEC intervention is aimed at increasing awareness of and knowledge about safe motherhood practices, and ultimately service utilization. In addition, the existence of the MHO and IEC interventions in select areas of Bla will enable PHR*plus* to evaluate the relative and synergistic impact of financing and knowledge-building interventions on use of pregnancy-related care.

This report presents the results of the baseline KAP survey conducted prior to implementation of the IEC campaign. The survey was carried out in four designated study zones in Bla: Bla central, Kemeni, Yangasso, and Falo. The zones were selected to enable PHR*plus* to evaluate the independent and combined impact of the MHO and IEC interventions on use of maternal health services. The four zones have the following characteristics:

- Kemeni and Bla central (urban) (selected areas): Operating MHO, no IEC intervention (to assess the impact of MHO only on utilization)
- Bla central (peri-urban) (selected areas): Operating MHO, IEC intervention (to assess the combined impact of the IEC and MHO interventions)
- Yangasso: No MHO, IEC intervention (to assess the impact of IEC campaign only on utilization)
- Falo: No MHO, no IEC campaign (control zone)

Across these four zones with a combined population of 69,144, a total of 428 women of reproductive age and 321 corresponding heads of household were interviewed.

Socio-demographic Characteristics of Respondents

The age of the household heads interviewed, all but two of whom were male, ranged from 19 to 95 with a median age of 43. The median age of women of reproductive age interviewed was 28. The other socio-demographic characteristics of the sample were relatively homogeneous. Eighty-five percent of the women and 97 percent of the household heads were married at the time of the survey. The vast majority of women (85 percent) had given birth to at least one child at the time of the survey. The distribution of educational attainment was similar for the women and household heads interviewed, with approximately 80 percent having received no formal education and 17 percent having finished primary school. Other indicators of socioeconomic status, including ownership of various assets and dwelling characteristics, were also relatively similar across households in the sample, suggesting limited wealth difference among households. Approximately 9 percent of households were members of a MHO at the time of the survey.

Awareness and Knowledge about Maternal Health

Most respondents were aware of the importance of seeking prenatal, delivery, and postnatal care at a health facility. Over 80 percent of women and household heads stated that they consider prenatal consultations to be essential for all pregnant woman and that they would choose for a friend or household member to deliver in a health facility. The main reasons given for seeking prenatal and delivery care in a health facility were to protect the health of the mother and child, to prevent/and or identify potential problems during childbirth (in the case of prenatal visits), and the availability of medicines (in the case of delivery care).

Postnatal care by a facility-based health worker was considered to be less important than prenatal and delivery care to the health of the mother and newborn. Only 60 percent of respondents believed postnatal care to be essential for all women. Twenty percent of women interviewed said that they would advise a friend to seek postnatal care only if a problem were to arise after delivery and an additional 6 percent of women (and 10 percent of household heads) said that they would counsel a woman to stay home after delivery.

General knowledge about maternal health care, including the number and timing of antenatal and postnatal visits and danger signs before, during, and after delivery, was moderately high. Approximately 70 percent of women and household heads said that the first prenatal visit should occur before the fourth month of pregnancy, and approximately half of all respondents stated that four or more prenatal consultations are advisable during the course of pregnancy. Approximately 50 percent of women interviewed were able to cite one or two specific services received during prenatal consultations. In contrast, 42 percent of household heads did not know what services were received during a typical prenatal consultation. The average number of danger signs before and after delivery mentioned by both groups of respondents was two, with fever being the most commonly cited symptom in both cases.

Access to Information on Safe Motherhood

The relatively high awareness of the importance of maternal health care, particularly prenatal care and skilled assistance at delivery, suggests that women and heads of household in Bla have been exposed to at least very general messages that promote the use of maternal health services. The survey found that 30 percent of women and 40 percent of household heads interviewed had received information related to maternal health in the last three months. The vast majority (75 percent) had heard messages focused on the importance of prenatal consultations. Few respondents had received information related to delivery or postnatal care.

Radio is a commonly accessed source of information among women and household heads. Over 90 percent of respondents reported listening to a radio often or sometimes, with 90 percent of households owning a radio. In addition, women tend to seek information from health workers and men from family and friends. Among all respondents, however, facility-based and community health workers were considered the most credible sources of information.

Utilization of Maternal Health Services

A comparison of the results of this survey to the 1999 Equity Initiative survey suggests that use of prenatal care in Bla has increased from 1999 to 2003. In 1999, 61 percent of women in Bla interviewed for the Equity Initiative survey sought prenatal care during their last pregnancy, versus 71 percent of women interviewed in 2003. Only 52 percent of women interviewed in both the 1999 and 2003 surveys delivered their last child under the care of a skilled health worker. This is a stark contrast to the vast majority of women interviewed who stated that they would advise a friend to deliver at a health facility.

Utilization of postnatal care is also much lower than would be expected given the fairly high awareness of its importance among respondents. While 72 percent of women interviewed stated that they would advise a friend to seek postnatal care and 60 percent believed postnatal care to be essential for all women, only one-third of women interviewed sought care after delivery of their last child. The 1999 survey data found that 34 percent of women interviewed had sought postnatal care, suggesting that the rate of use of postnatal care has remained relatively constant from 1999 to 2003.

Lack of need was the most frequently cited reason for non-use of prenatal and postnatal care, cited by 24 and 61 percent of women, respectively. Financial reasons – the services were considered too expensive or were not covered by an insurance mechanism – were cited by 20 percent of women as reasons for non-use of prenatal services and by 16 percent as reasons for postnatal services. Distance to the health center and lack of transportation were cited as a reason for not seeking prenatal care by 22 percent of women, but by only 7 percent of women in the case of postnatal care.

Women's health seeking decisions may also be a function of the hierarchy of decision-making power within the household. For decisions about whether or not to seek care in the face of danger signs during pregnancy, over 70 percent of women and household heads cited the husband as the principal decision maker. When it comes to decisions about place of delivery, however, women and household heads appear to have differing views. Forty-two percent of women interviewed said that the pregnant women would decide where to deliver versus only 10 percent of household heads. The husband was the most cited decision maker for delivery care by household heads (67 percent) and the second most cited by women (36 percent).

Conclusion

The discrepancy between the perceived importance of maternal health services and actual use suggests that women in Bla continue to face barriers to utilization of these services. The main reasons cited for non-use of prenatal and postnatal care were lack of need and the costs related to visiting the health center, suggesting that knowledge and financial constraints may affect women's health seeking behavior. The survey also found that household heads and husbands are the primary decision makers regarding maternal health care, and that they tend to have surprisingly similar perceptions of and knowledge about maternal health care as the women interviewed. However, financial and information constraints may affect the ability of household heads to make care seeking decisions that are best for women's health during and after pregnancy.

1. Introduction

Nearly two decades after the Safe Motherhood Initiative was launched, maternal mortality remains the human development indicator showing the widest disparity between rich and poor nations, with the lifetime risk of a woman dying from causes related to pregnancy and childbirth nearly 40 times higher in developing than developed countries (World Health Organization and UNICEF 1996; Donnay 2000). Large rich-poor differences in maternal mortality also exist within developing countries (Graham 2003). It is well known that many maternal health problems can be prevented with appropriate antenatal, delivery, and postnatal care[1] (Gelband et al. 2001). However, despite international and government efforts to increase the provision of a basic package of essential maternal health services, the majority of women in developing countries are still not able to access these potentially life-saving services. In poor countries, shortages of skilled health workers and equipped facilities, and the often-unequal distribution of existing health resources, create barriers to care for large segments of the population. Women's use of care tends to be further restricted by educational, social, cultural, and financial factors.

In Mali, complications related to pregnancy and delivery are responsible for one-third of deaths among women aged 15 to 49. At 582 maternal deaths for every 100,000 live births, the maternal mortality ratio in Mali is one of the highest in the world (Ballo et al. 2001). Several studies have pointed to very low or inadequate use of appropriate maternal care services to explain such a high maternal mortality ratio (Mekonnen and Mekonnen 2002; Owino 2001; Moore 2000). According to the 2001 Demographic and Health Survey, 57 percent of Malian women who are pregnant have at least one prenatal consultation, but less than a third of these visits occur within the first four months of pregnancy or are followed by an adequate number of repeat visits. A skilled health worker assists only 41 percent of all births in Mali, and less than 30 percent of births in rural areas. While many maternal deaths occur within the first few days after delivery, only one in five Malian women receives any postpartum care.

In 1999, the Equity Initiative (IPE) in Mali, under the USAID-funded Partnerships for Health Reform project, conducted a study to investigate the factors affecting access to and use of health services in two pilot sites in Mali: the rural district of Bla in the region of Ségou and the urban commune of Sikasso in the neighboring region of Sikasso. The study's findings highlighted geographic and socioeconomic disparities in utilization of maternal health care. Use of prenatal care and skilled attendance during delivery were found to be significantly lower in Bla than in Sikasso. Sixty-one percent of women in Bla reported at least one prenatal visit during their last pregnancy versus 87 percent in Sikasso, and only half of the women surveyed in Bla delivered their last child with the assistance of a skilled attendant versus over 90 percent in Sikasso. Particularly in Bla, women in the poorest quintile were significantly less likely to have an assisted delivery than women in richest income quintiles.

The IPE survey, however, found that use of postnatal services was low and approximately the same in both the rural and urban sites and across socioeconomic groups. Only 36 percent of women

[1] Appropriate delivery care here includes essential obstetric care for complications.

surveyed had sought postnatal care after the delivery of their last child (40 percent in Sikasso and 35 percent in Bla). Two of the main reasons cited for not seeking prenatal and postnatal care were economic factors (the respondent considered the cost of the service too high or did not have health insurance) and lack of need. An additional 25 percent of women surveyed stated that they did not seek postnatal care because there was no need to do so (Gamble Kelley, A. et al. 2001).

Since the completion of the 1999 study, using the survey results as a base, the Equity Initiative has been working with communities in Bla and Sikasso to develop and implement strategies to address barriers to care identified through the survey. One of the main interventions that resulted from this work was the creation of community-based health insurance schemes,[2] known as mutual health organizations (MHOs), as a means of making health care more financially accessible to the population. MHOs have been enrolling members in selected areas of Bla and in Sikasso since late 2002/early 2003. In 2004, the Equity Initiative will conduct an evaluation of the effectiveness of these MHOs in increasing access to and utilization of health care services.

In 2003, the Partners for Health Reform*plus* (PHR*plus)* project decided to go one step further in addressing barriers to utilization of maternal health care in Bla by implementing information, education, and communication (IEC) interventions in select areas. The IEC intervention is aimed at increasing awareness of and knowledge about safe motherhood practices, and ultimately service utilization. PHR*plus* is focusing its IEC efforts on Bla in response to the results of the 1999 survey indicating that utilization of most maternal health services is significantly lower in Bla than Sikasso, particularly among the poorest and uneducated women.

The existence of the MHO and IEC interventions in select areas of Bla will enable PHR*plus* to evaluate the relative and synergistic impact of financing and information-based interventions on the use of maternal health services. The evaluation will attempt to determine the independent effects of the MHO and IEC interventions, as well as the effects of implementing both interventions simultaneously, on utilization of maternal health care.

To design and evaluate the effectiveness of the IEC intervention, PHR*plus* needed to assess people's current knowledge and attitudes related to maternal health care. This report presents the results of a baseline survey conducted in April 2003 that aimed to generate this information. The main objectives of this survey were to: (1) provide baseline information on knowledge, attitudes, and practices related to maternal health among women of reproductive age and heads of households; and (2) to guide the development of the IEC interventions in selected areas of Bla. This survey complements the 1999 Equity Initiative survey of maternal health practices.

[2] For more information on community-based health insurance and MHOs see: Bennett (2004) and Atim (1998).

2. Study Design and Methodology

2.1 Study Design and Site Selection

For this evaluation study, a quasi-experimental design will be used to evaluate the impact of MHOs and the IEC interventions, and the combined impact of the two interventions, on maternal health care utilization in Bla district. Four study zones in Bla district were purposely selected for inclusion in this study, three zones in which one or both interventions are being implemented and one control zone. Changes over the study period in knowledge, attitudes, and practices in these four zones will be compared to assess the effectiveness of these interventions aimed at increasing utilization of health care.

The four zones included in the study have the following characteristics:

Zone 1:	Operating MHO, no IEC intervention (to assess the impact of MHO only on utilization)
Zone 2:	Operating MHO, IEC intervention (to assess the combined impact of the IEC and MHO interventions)
Zone 3:	No MHO, IEC intervention (to assess the impact of IEC campaign only on utilization)
Zone 4:	No MHO, no IEC campaign (control district)

The sites in Bla district that correspond to the four zones above are as follows:

Zone 1:	Kemeni, Bla central (urban)
Zone 2:	Bla central (peri-urban)
Zone 3:	Yangasso
Zone 4:	Falo

There are two operational MHOs in Bla district, which are located in the towns of Blaville (Bla central-urban) and Kemeni. Therefore, these two sites are included in the study. To ensure valid comparisons among the study zones, comparison sites (Yangasso and Falo) were chosen based on the similar socio-demographic characteristics of their populations and geographic access of their communities to health facilities.

This report presents the results of a baseline survey of knowledge, attitudes, and practices conducted in Bla central, Kemeni, Yangasso, and Falo in April 2003. Endline data will be collected in these four study zones as part of the Equity Initiative survey scheduled for July 2004.

2.2 Sample Methodology and Size

The study population includes residents in the study zones of Blaville, Kemeni, Yangasso, and Falo in Bla district. The total estimated population of these four zones combined is 69,144.

The selection of a sample of households within the four zones involved the use of a two-stage sampling design. To determine the sampling frame, the first stage included a mapping of the census sections in the district of Bla onto the four study zones. The designated study zones correspond to the estimated target populations for the current and potential MHOs in Bla district, which are roughly the same as the service populations for the public health facilities located in Blaville, Kemeni, Yangasso, and Falo. However, the study zones do not correspond exactly to the administrative districts within Bla district. Therefore, a team of cartographers was hired to map out which census districts were included in each of the four designated study zones.

Once the census districts were identified, the number of households and population information for each census section was used to determine the study population. From this sampling frame, a list of census districts was randomly selected in each of the four study zones. For the second stage, households within each of the census districts were randomly selected.

Qualitative research was conducted to inform the study design and questionnaire development, as well as initial discussions related to the IEC intervention. Focus groups discussions were held with men and women of various ages in Bla (outside of the study zones) to gain insight into people's perceptions, beliefs, knowledge, and practices related to maternal health. One of the key findings of the qualitative research was that heads of household in Mali have a strong influence on decisions regarding maternal health care. Based on this finding, the decision was made to include household heads as well as women of reproductive age (15-49) in the study. Household heads and women of reproductive were interviewed separately.

Table 1 presents a summary of the survey sample, which includes a total of 428 women of reproductive age and 321 corresponding household heads.

Table 1: Summary of Survey Sample

	Blaville	Kemeni	Yangasso	Falo	Total
No. of census districts	5	5	3	5	18
No. of households	72	56	93	100	321
No. of individuals	177	139	205	228	749
Women aged 15-49	105	83	112	128	428
Household heads	72	56	93	100	321

3. Respondents' Characteristics

3.1 Socio-demographic Characteristics

Table 2 presents background characteristics of women of reproductive age (15-49) and corresponding heads of household interviewed in this survey. Almost all of the household heads interviewed were male (99 percent). The age of the household heads ranged from 19 to 95 with a median age of 43. The median age of the women surveyed was 28. Eighty-five percent of the women and 97 percent of the household heads were married at the time of the survey. The vast majority of women (85 percent) had given birth to at least one child at the time of the survey.

Table 2: Percent Distribution of Survey Respondents by Background Characteristics

Characteristic	Women N=428	Heads of HH N=321
Sex		
Male	**	99.4
Female	100	0.6
Age group		
15-19	20.3	0.6
20-34	47.4	27.1
35-44	24.7	28.6
45-49	7.6	9.9
50+	**	33.8
Marital status		
Single	14.0	1.6
Married	84.6	97.2
Divorced	0.5	0.6
Widowed	0.9	0.6
Education		
None	82.4	78.1
Primary	16.9	16.6
Secondary	0.7	4.1
Tertiary	0	1.3
Religion		
Muslim	95.7	**
Christian	4.0	**
Animist	0.2	

Characteristic	Women N=428	Heads of HH N=321
Ethnicity		
Bambara	63.9	71.9
Senofo/Muanianka	15.7	15.0
Peulh	4.0	3.1
Sarakolé/Soninké/Marka	6.1	2.2
Bobo	4.0	2.8
Others	6.3	5.0
Have given birth to at least one child		
Yes	84.8	N/A
No	15.2	N/A
Mutuelle member		
Yes	8.9	8.9
No	91.1	91.1

The distribution of educational attainment was similar for the women and household heads interviewed. Approximately 80 percent had never received formal education; 17 percent had finished primary school. The vast majority (96 percent) of women identified themselves as Muslim, and most respondents were of the same ethnic group, Bambara. Approximately 9 percent of households were members of a MHO at the time of the survey.

3.2 Access to Media

The survey asked questions about respondents' access to and use of different types of media. Respondents were asked how often they read the newspaper, whether or not they owned a radio or television, and how often they listened to the radio. Table 3 summarizes the responses to these questions. In general, household heads reported greater exposure to media than the women surveyed. One-third of household heads reported that they read a newspaper often or occasionally versus less than 10 percent of women.

Table 3: Access to Media, by Type of Respondent

	Women (%)	Heads of HH (%)
Frequency of reading a newspaper	**N= 422**	**N= 319**
Often	2.6	11.6
Sometimes	7.1	20.7
Never	90.3	67.7
Radio/TV ownership	**	**N=321**
Own a radio		89.4
Own a TV		20.6
	Women (%)	**Heads of HH (%)**
Frequency of listening to radio	**N=293**	**N=312**
Often	33.5	56.1
Sometimes	55.6	40.7
Never	10.9	3.2

As expected, a much higher percentage of women and household heads reported listening to the radio than reading a newspaper. Access to radio appears to be high, with almost 90 percent of the household heads reporting that their household owns a radio. Almost 90 percent of the women interviewed and 97 percent of household heads reported listening to the radio often or sometimes. However, only one-third of women interviewed stated that they listen to the radio often versus over half of the household heads interviewed. Approximately 20 percent of household heads reported ownership of a television. Households were not asked how frequently they watch television.

3.3 Socioeconomic Status

One of the initial objectives of this study was to examine socioeconomic differences in knowledge, attitudes, and practices related to maternal health. To this end, the survey asked household heads several questions concerning household characteristics and belongings with the aim of creating an asset-based index as a measure of household socioeconomic status. The questions included in the survey, however, were not sufficient to detect significant differences in asset ownership among households. This is not surprising given that Bla is a rural district with a relatively homogeneous population. In such an environment, additional asset-related questions or consumption and expenditure data may be needed to identify wealth differences among households and to make classifications by socioeconomic status. Therefore, due to these data limitations, this report will not present an analysis of socioeconomic differences.

4. Results

4.1 Perceptions of Maternal Health Care

Women will seek maternal health services only if they and/or their family members perceive these services to be important for the health of the mother and child. To investigate perceptions of maternal health and care seeking preferences before, during, and after delivery, the survey asked women and household heads a series of similar questions at different points during the interview process:

- What advice would you give a pregnant friend/member of your household concerning her health during pregnancy?
- In your opinion, for which women is it essential to seek prenatal care?
- What advice would you give a pregnant friend/member of your household concerning the place of delivery?
- If you/member of your household were to become pregnant, where would you choose as a place of delivery?
- What advice would you give a pregnant friend/member of your household concerning her health during the postnatal period?
- In your opinion, for which women is it essential to seek postnatal care?

Table 4 presents the spontaneous responses cited with the highest frequency to these questions.[3] As this table shows, women and household heads offered fairly similar advice and opinions regarding maternal health practices.[4]

[3] Unless otherwise noted, responses to all questions in the survey were cited spontaneously by respondents and then directly recorded by the interviewer. No answer choices were offered to the respondents.
[4] Women and household heads were interviewed separately.

Table 4: Perceptions of Health and Health Care Seeking Options During Pregnancy, Delivery, and the Postnatal Period, by Type of Respondent

	Women (%) N= 428*	Heads of HH (%) N=321
Prenatal care		
% who would advise pregnant friend/woman in HH to seek prenatal care in a health facility	80.8	98.1
% who consider service essential for all women	81.8	85.4
Delivery		
% who would advise pregnant friend/woman to deliver in health facility	88.6	95.0
% of women who would deliver in health facility if pregnant in future	82.9	**
% of household heads who would like HH member to deliver in health facility	**	90.3
Postnatal care		
% who would advise pregnant friend/woman in HH to seek postnatal care in a health facility	72.5	80.1
% who consider postnatal care essential for all women	61.4 N=427	64.2 N=320

* For some questions, the responses of 1 to 3 respondents were mistakenly omitted.

4.1.1 Prenatal care

Over 80 percent of women and 98 percent of household heads said that they would advise a friend to seek prenatal care during pregnancy. The only more specific health behaviors offered as advice with a fairly high frequency were taking malaria medication (cited by 15 percent of women and 24 percent of household heads) and receiving a tetanus vaccination (cited by 4 percent of women and 16 percent of household heads).

Respondents were also asked for which women it is essential to seek prenatal care. Over 80 percent of women and household heads responded that prenatal consultations were essential for all women during pregnancy.

Tables 5 summarize the reasons given by women and heads of household for seeking prenatal care. The main reasons cited were to protect the health of the mother and newborn baby and to prevent/and or identify potential problems during childbirth.

Table 5: Reasons Cited for Seeking Prenatal Care at a Health Facility, by Type of Respondent

Reasons for prenatal consultations (multiple responses possible)	Women (%) N=426	Heads of HH (%) N=321
Protect the health of mother	66.2	88.8
Protect health of infant	56.8	75.1
Avoid problems during delivery	41.1	54.8
Identify potential problems during delivery	18.5	6.9
Receive anti-malarial medicine	12.9	8.4
Receive iron tablets	6.1	3.4
Receive tetanus vaccination	7.3	5.0
Plan for childbirth	0.9	0.3
Other	2.6	0.9
Don't know	4.7	0.9

4.1.2 Delivery

The vast majority of women (89 percent) and household heads (95 percent) said they would advise a friend or member of their household, respectively, who was pregnant to deliver at a health facility. The survey asked respondents what, if any, were the advantages to delivery at a health facility. All respondents cited at least one advantage. The advantages mentioned with the highest frequency were protection for the mother and child from complications during delivery and the availability of medicines. Table 6 lists these and other advantages mentioned by each type of respondent.

Table 6: Percentage Distribution of Advantages for Delivering at a Health Facility, by Type of Respondent

Advantages cited (multiple responses possible)	Women (%) N= 427	Heads of HH (%) N= 320
Protect the mother and child against complications	83.4	91.3
Availability of medicine	31.6	47.7
Competent staff	9.1	12.2
Cleanliness and comfort	5.4	1.9
To facilitate delivery	1.4	9.4
Other	0.2	12.5
No advantages	0.0	0.6

4.1.3 Postnatal Care

Women and household heads perceive postnatal care to be less important than prenatal care to the health of the mother and newborn. While over 80 percent of women and household heads interviewed perceive prenatal care to be essential for all women, only 60 percent responded that postnatal care was essential for all women. One-fifth of women surveyed said that they would advise a friend to seek postnatal care only if a problem arises after delivery. An additional 6 percent of women and 10 percent of household heads said that they would counsel a woman to stay home after delivery.

4.2 Knowledge of Safe Motherhood Practices

In addition to recognition of the general health benefits of maternal health services, women and their families need a sufficient amount of more in-depth knowledge about maternal health care in order to make appropriate decisions about their health during and after pregnancy. This includes awareness of when and how often they should seek care, services that should be received during prenatal visits, and signs of maternal health problems and obstetric emergencies.

Current Safe Motherhood guidelines for sub-Saharan Africa recommend that a pregnant woman receive care from a trained health worker at least four times during her pregnancy and that the first prenatal visit occur by the end of the fourth month of pregnancy.[5] To assess awareness of these

[5] See http://www.jhuccp.org/africa/tools/info/safe.shtml

guidelines for care during pregnancy, the survey asked all respondents at what point during pregnancy the first prenatal visit should occur. As shown in Table 7, 71 percent of women interviewed and 69 percent of heads of households stated that the first visit should occur in or before the fourth month. The largest percentage of women (42 percent) and heads of household (44 percent) responded that the first visit should occur during the third month of pregnancy.

When asked how many times a women should seek prenatal care during her pregnancy, 46 percent of women interviewed and 54 percent of household heads stated that a woman should have four or more prenatal visits (Table 8). A relatively large 20 percent of women and household heads answered "don't know."

Table 7: Timing of First Prenatal Visit, by Type of Respondent

Moment during pregnancy	Women (%) N=426	Heads of HH (%) N= 318
1st – 4th month	70.9	68.8
5th month	4.2	**
6th month	3.1	**
One month before delivery	2.6	2.2
When there is a problem	2.6	11.2
Other	1.2	9.7
Don't know	14.3	10.9

Table 8: Number of Prenatal Visits, by Type of Respondent

Number of visits	Women (%) N= 427	Heads of HH (%) N=321
1 visit	1.9	0.0
2 visits	3.3	1.9
3 visits	24.1	19.3
4+ visits	45.7	53.6
Other	2.3	5.3
Don't know	22.7	19.9

The survey also asked respondents which services are normally received during a prenatal visit. As shown in Table 9, the most frequently cited prenatal care services among all respondents were weighing the mother, taking the mother's blood pressure, and receiving medicine (including iron tablets and malaria prophylaxis). Among women interviewed, a large proportion also mentioned listening to the heartbeat of the child (44 percent) and receiving a tetanus vaccination (34 percent). However, one half of women interviewed cited only one or two prenatal care services and 42 percent of household heads did not know what services were received during a typical prenatal consultation.

Table 9: Spontaneous Mentions of Services Normally Received During a Prenatal Visit, by Type of Respondent

Prenatal services (multiple responses possible)	Women (%) N= 428	Heads of HH (%) N= 320
Weigh mother	57.5	40.9
Listen to heart beat of fetus	43.7	0.0
Take blood pressure	39.3	20.3
Tetanus vaccination	33.6	7.5
Receive malaria prophylaxis	28.5	14.1
Receive medicines/iron tablets	22.9	15.6
Anemia evaluation	17.5	10.6
Gynocological exam	17.3	2.2
Malaria evaluation	12.6	5.9
Blood tests	12.2	0.0

Prenatal services (multiple responses possible)	Women (%) N= 428	Heads of HH (%) N= 320
Counsel on danger signs	7.2	4.7
Counsel on birth preparedness	6.5	4.1
Other	3.7	12.8
Don't know	0.9	41.7

Women and their families should also be aware of "danger signs" during pregnancy indicating the need for immediate medical attention. Danger signs during pregnancy include: vaginal bleeding; fever; continuous vomiting; dizziness/fainting; severe waist pains; uneven heart beat; swollen feet, hands, and face; yellow eyes and itching all over body; severe headache; blurred vision; fits or convulsion; and decrease or cessation of baby's movement. [6]

To assess awareness of these danger signs, the survey asked women and household heads to cite the main danger signs during pregnancy indicating the need for a medical consultation outside of a routine prenatal consultation. Table 10 presents the main signs mentioned by respondents. The signs cited with the highest frequency by women and heads of household were fever and abdominal pain. Severe headaches and nausea were also cited with a fairly high frequency. The average number of danger signs mentioned by women and household heads interviewed was approximately two (2.3 for women and 2.1 for household heads).

Table 10: Danger Signs Indicating Need for Prenatal Care Outside of Normal Consultations, by Type of Respondent

Danger signs (unprompted)	Women (%) N= 427	Heads of HH (%) N=321
Fever	69.3	64.5
Abdominal pain	51.8	48.6
Severe headaches	17.1	24.0
Nausea	19.0	22.7
Anemia	10.5	15.9
Bleeding	14.3	9.0
Swollen face/feet/hands	9.6	9.7
Fainting	3.3	4.1
Difficulty breathing	7.0	3.1
Convulsions	4.9	0.9
Malaria	0.5	**
Other	7.0	13.7
Average number of danger signs mentioned	2.3	2.1

Many complications and maternal deaths occur within several days of delivery due to often sudden and unexpected complications that arise during or immediately following the delivery (Donnay 2000). Therefore, it is recommended that a woman have a check-up with a trained health

[6] See http://www.jhuccp.org/africa/tools/info/2.shtml

worker within one week after giving birth. A second postnatal visit is recommended for 5-6 weeks after delivery.[7] The survey asked respondents when women should seek postnatal care. The responses to this question are summarized in Table 11. Only 2 percent of women and 19 percent of household heads responded that postnatal care should be sought within the first week after delivery. The response with the largest frequency was 5-6 weeks after delivery, which was cited by 45 percent of women and 33 percent of household heads surveyed. Approximately 20 percent of women interviewed and 10 percent of household heads stated that they did not know.

Table 11: Timing of Postnatal Visit After a Normal Delivery, by Type of Respondent

Moment after delivery	Women (%) N=428	Heads of HH (%) N=321
1 week	2.1	19.3
15 days	10.1	8.1
5-6 wks after delivery	45.1	33.0
If there is a problem	18.0	17.1
Other	3.3	13.1
Don't know	21.1	9.4

Respondents were asked to cite danger signs after delivery indicating need for medical attention. These danger signs include: vaginal bleeding; stomach pain; vaginal discharge; vomiting, dizziness; uneven heart beat; and genital sores. The signs cited with the greatest frequency by women and household heads interviewed were fever and excessive bleeding, mentioned by approximately one-half and one-third, respectively, of both types of respondents. Abdominal pain was also cited by a relatively high 27 percent of respondents.

Table 12: Danger Signs After Delivery, by Type of Respondent

Danger signs (unprompted)	Women (%) N= 428	Heads of HH (%) N=321
Fever	47.7	53.6
Excessive bleeding	34.6	29.3
Abdominal pain	26.6	26.8
Foul smelling vaginal discharge	8.9	15.6
Fainting	5.6	9.4
Dizziness	4.0	0.9
Headache	1.9	0.3
Other	6.3	14.6

4.3 Exposure to Information on Safe Motherhood

The relatively high awareness of the importance of maternal health care, particularly for prenatal care and skilled assistance at delivery, suggests that women and heads of household in Bla have been exposed to at least very general messages that promote the use of maternal health services. To explore

[7] See http://www.jhuccp.org/africa/tools/info/safe.shtml

this further, the survey asked respondents whether or not they had received information related to maternal health within the three months preceding the survey. One-third of women and almost 40 percent of household heads interviewed said that they had.

Table 14 presents the subject matter of the maternal health information received by respondents. Among those who had received information on maternal health care, three-quarters of women and household heads interviewed stated that the messages heard were on the importance of seeking care during pregnancy. Exposure to messages about specific prenatal care behaviors, such as receiving a tetanus vaccination and malaria prevention, was also relatively high among all respondents. In contrast, messages related to assisted delivery were heard by only 16 percent of women and 12 percent of household heads exposed to safe motherhood messages in the last three months. Few women (8 percent) stated that they had heard messages related to postnatal care. However, 42 percent of household heads mentioned hearing messages related to the importance of postnatal care.

Table 14: Percentage of Respondents Exposed to Safe Motherhood Messages, Subject and Source of Messages Seen/Heard

Exposure to maternal health care information	**Women (%) N=428**	**Heads of HH (%) N=321**
% exposed during last three months to maternal health care information	32.7	39.3
Subject of messages (multiple responses possible)	**Women N=140**	**Heads of HH (%) N=126**
Importance of prenatal care	75.0	75.4
Diet and nutrition during pregnancy	22.1	14.3
Tetanus vaccinations	20.7	17.5
Malaria prevention during pregnancy	19.3	23.0
Assisted delivery	15.6	11.9
Anemia prevention during pregnancy	13.6	6.4
Danger signs during pregnancy	12.2	23.0
Importance of postnatal care	7.9	42.1
Don't know	0.8	0.0
Source of Information (multiple responses possible)	**Women N= 141**	**Heads of HH (%) N=126**
Matron	21.3	**
Community health agent	13.5	7.1
Nurse/Midwife	11.4	8.7
Doctor	1.4	7.1
Traditional birth attendant	**	2.4
Community education agent (Animatrice)	5.7	3.2
Relative/Friend	7.1	64.3
Radio	49.7	17.5
Television	4.3	11.9
Other	3.6	6.4

The survey found that women and household heads interviewed receive information on maternal health from different sources. Radio was the most frequently cited source among women interviewed. A relative or friend was the most mentioned source among household heads. Even though survey responses suggest that household heads tend to listen to the radio more frequently than women, the radio was cited as a source of information by only 18 percent of household heads versus 50 percent of women interviewed. As expected, women cited health workers (doctor, nurse, matron, or midwife) as an information source more frequently than men. However, health workers appear to be a less common source of information for women than the radio.

The survey also asked all respondents what source of information on maternal health they would consider the most credible. Table 15 summarizes the responses. Interestingly, only 6 percent of women cited the radio, and only 6 percent of men cited a relative or friend as the most credible source, despite the fact that these were the most frequently cited sources of information. A majority of women (62 percent) and household heads (67 percent) interviewed believed information received from a facility-based health worker, either a doctor, nurse/midwife, or matron, to be more credible. Community health worker was cited by roughly 20 percent of women and household heads. Relatively few women (7 percent) or household heads (4 percent) mentioned a traditional midwife.

Table 15: Most Credible Source of Information on Maternal Health, by Type of Respondent

Danger signs (unprompted)	Women (%) N= 428	Heads of HH (%) N=321
Doctor	12.6	16.8
Nurse/Midwife	22.0	25.9
Matron	27.6	24.3
Traditional birth attendant	6.7	3.7
Community health worker	23.1	19.9
Relative/Friend	3.3	1.6
Radio	6.3	7.5
Other	4.4	2.5
Don't know	4.7	0.0

4.4 Use of Maternal Health Services

Utilization of maternal health services in Bla varies significantly by type of service, and does not always correspond to levels of awareness or knowledge related to maternal health care.

The survey found that a relatively high proportion of women in Bla (71 percent) have at least one prenatal consultation. While this utilization rate for prenatal care exceeds the national average of 57 percent, it is still significantly lower that the percentage of women interviewed who stated that they would advise a friend to seek prenatal care (81 percent), or who stated that prenatal care is essential for all women (82 percent).

Table 16: Utilization of Prenatal Care, Skilled Assistance at Delivery, and Postnatal Care among Women Who Have Given Birth to At Least One Child at the Time of the Survey

Type of service	2003 Survey N= 363	1999 Survey N=318
Prenatal care	71.3	61.3
Assisted delivery	52.1	52.0
Postnatal care	33.9	34.3

A comparison of the results of this survey to the 1999 Equity Initiative survey[8] suggests that use of prenatal care in Bla has increased from 1999 to 2003. In 1999, 61 percent of women in Bla interviewed for the Equity Initiative survey sought prenatal care during their last pregnancy, versus 71 percent of women interviewed in 2003. The 2003 survey did not ask women interviewed how many times they had gone for a prenatal visit during their last pregnancy. The 1999 Equity Initiative survey, however, found that among women in Bla who sought prenatal care, only 30 percent had four or more prenatal consultations during their pregnancy.

Fifty-two percent of women interviewed in both the 2003 and 1999 surveys delivered their last child under the care of a skilled health worker.[9] This is a stark contrast to the 89 percent of women interviewed for the 2003 survey (and 89 percent of those who had given birth) who stated that they would advise a friend to deliver at a health facility, and 83 percent who stated that they would deliver at a health facility if they were to fall pregnant in the future.

Utilization of postnatal care is also much lower than would be expected given the fairly high awareness of its importance among respondents. While 72 percent of women interviewed stated that they would advise a friend to seek postnatal care and 60 percent believed postnatal care to be essential for all women, only one-third of women interviewed sought care after delivery of their last child. The 1999 survey data found that 34 percent of women interviewed had sought postnatal care, suggesting that the rate of use of postnatal care has remained relatively constant from 1999 to 2003.

4.5 Barriers to Care

The discrepancy between women's awareness of the importance of prenatal care, skilled assistance at delivery, and postnatal care and actual use of these services suggests that women face barriers to seeking care. To elicit some of the factors affecting use of maternal health services, the survey asked women to cite the main reasons why they did not seek care prenatal and postnatal care during and after their last pregnancy, respectively. Table 17 presents the reasons cited by women interviewed for non-use of these services.

[8] The 1999 IPE survey interviewed women of reproductive age in Bla who had given birth in the 12 months preceding the survey, or were pregnant at the time of the survey. The IPE sample totaled 318 women selected from the entire district of Bla.
[9] In this study, a skilled health worker includes a doctor, midwife, obstetric nurse, nurse's aid, matron, or trained birth attendant. Ninety-five percent of the births assisted by a skilled attendant occurred in health facilities.

Table 17: Reasons Cited by Women Respondents for Not Seeking Prenatal and Postnatal Care

Reason for not seeking care	Prenatal care N=91	Postnatal care N=236
Too expensive	6.6	9.8
Distance to health center	9.9	7.2
No health insurance	13.2	5.9
No transport	12.1	**
Traditional or religious reasons	0.0	1.3
No need	24.2	61.0
Other	9.9	3.8
Don't know	24.1	11.0

Lack of need was the most frequently cited response for non-use of prenatal and postnatal care, cited by 24 and 61 percent of women interviewed who did not seek care before and after their last pregnancy, respectively. This finding suggests that among women who do not seek care during or soon after delivery, lack of awareness of the need for routine care visits in the absence of any danger signs could be affecting women's care seeking decisions.

Financial reasons – the services were considered too expensive or were not covered by an insurance mechanism or transportation – were cited by 42 percent of women as a reason for non-use of prenatal services and by 23 percent as a reason for postnatal services.

Women's health care seeking behavior is also influenced, if not determined, by the hierarchy of decision-making power within the household. Therefore, the person(s) within the household who hold the greatest decision-making power can be potential barriers to care. To better understand the decision-making structure and influences related to maternal care, the survey asked respondents a series of questions during the course of the interview process:

- Who would decide if you/a woman in your household should seek care if a complication were to arise during pregnancy?
- Who has the greatest influence on prenatal care decisions?
- Who decides where you/a woman in your household delivers?
- Who has the greatest influence on decisions about place of delivery?
- Who has the greatest influence on decisions concerning postnatal care?

Table 18 presents the principal decision makers cited by women and household heads interviewed. For decisions about whether or not to seek care in the face of a danger sign during pregnancy, over 70 percent of women and household heads cited the husband as the principal decision maker. When it comes to decisions about place of delivery, however, women and household heads appear to have differing views. Forty-two percent of women interviewed said that the pregnant women would decide where to deliver versus only 10 percent of household heads. The husband was most cited decision maker for delivery care by household heads (67 percent) and the second most cited by women (36 percent).

Table 18: Decision Maker Cited in Maternal Health Decisions, by Type of Respondent

Decision Maker	Women's responses		Head of Household responses	
	Prenatal care N= 423	Delivery N= 424	Prenatal care N= 314	Delivery N= 320
Husband/partner	70.5	35.5	75.2	67.3
Woman herself	17.7	41.8	7.6	10.3
Head of household	1.2	**	16.9	16.6
Father-in-law	4.0	**	6.1	5.0
Mother-in-law	3.3	9.4	**	2.8
Mother	3.6	3.3	**	0.6
Friends/neighbors	0.2	1.7	**	**
Other	1.2	8.3	4.5	4.1

5. Conclusions

This report has presented several findings that are important for understanding maternal health knowledge, attitudes, and practices in rural Mali and for designing an IEC intervention that is responsive to local maternal health needs. The following summarizes some of the key findings generated from this survey:

- Most women and household heads are aware of the importance of maternal health services, particularly prenatal care and skilled assistance at delivery, to the health of the mother and child. Levels of more in-depth knowledge about care during pregnancy, including the timing and frequency of prenatal visits and danger signs, are moderately high overall, and particularly when compared to knowledge about postnatal care. Almost no women and less than one-fifth of household heads were aware that the first postnatal visit should occur within the first week after delivery.

- A large minority of women and household heads reported that they had been exposed to maternal health messages within the three months preceding the survey. Most had heard messages focused on prenatal care, either the general importance of prenatal care, the importance of specific services received during a prenatal visit (tetanus vaccination, iron tables, or malaria prophylaxis), or diet and nutrition during pregnancy. Very few respondents reported hearing messages related to delivery or postnatal care.

- Women and household heads interviewed received information on maternal health from different sources. Radio was the most frequently cited source among women versus a relative or friend among household heads. Even though survey responses suggest that household heads tend to listen to the radio more frequently than women, the radio was cited as a source of information on maternal health by only 18 percent of household heads versus 50 percent of women interviewed. In addition to radio, women tend to seek information from health workers and men from family and friends. Among all respondents, however, facility-based and community health workers are considered the most credible sources of information.

- Use of prenatal care services is high in Bla, with over 70 percent of women interviewed stating that they sought prenatal care during their last pregnancy. In contrast, only 52 percent of women gave birth to their last child with the assistance of a skilled health worker, and only 33 percent of women sought postnatal care after their last delivery. Respondents' greater recent exposure to information related to prenatal care versus delivery and postnatal care suggests that IEC may have an impact on maternal health care behaviors.

- The discrepancy between perceptions of the importance of maternal health services and actual use suggest that women in Bla face barriers to utilization of these services. The survey found that household heads and husbands are the primary decision makers regarding maternal health care, and that they tend to have similar perceptions of and knowledge about maternal health care as the women interviewed. However, financial and information constraints may affect the ability of household heads to make care seeking decisions that are

best for women's health during and after pregnancy.

Based on the above survey results, the following recommendations are offered to guide the design of the IEC intervention:

- Women in Bla are significantly more likely to seek care from a skilled health worker during pregnancy than during or after delivery, yet the majority of complications and deaths occur during and immediately after delivery. Therefore, IEC efforts should focus on increasing demand for and utilization of delivery and immediate postpartum care. In addition, while many respondents reported hearing messages promoting prenatal care, few respondents had been exposed to information related to delivery and postnatal care.

- Specific IEC messages should be developed that target husbands and household heads in their role as key decision makers in matters regarding maternal health care.

- Facility-based and community health workers were considered by most respondents to be the most credible sources of information regarding maternal heath. Therefore, efforts should be made to strengthen and increase their role in building community awareness of and knowledge about safe motherhood practices.

- As the most commonly accessed source of information, the radio could be a valuable means of disseminating safe motherhood messages over a large geographic area.

Bibliography

AbouZahr, Carla and Berer, Marge, eds. 1999. "When Pregnancy is Over: Preventing Post-Partum Deaths and Morbidity" In *Safe Motherhood Initiatives: Critical Issues*. London, Blackwell Science Limited. 127-136.

AbouZahr, Carla, Vlassoff, Carol, and Anuradha Kumar. 1996. "Quality Health Care for Women: a Global Challenge." *Health Care for Women International* 17: 449-467.

Atim, Chris. 1998. *Contribution of Mutual Health Organizations to Financing, Delivery and Access to Health Care: Synthesis of Research in Nine West and Central African Countries*. Technical Report No. 18. Bethesda, Maryland: Partnerships for Health Reform, Abt Associates Inc.

Ballo, M. et al. 2001. *Mali Demographic and Health Survey 2001: Key Findings*. ORC Macro International.

Bennett, Sara. 2004. *21 Questions on CBHF: An Overview of Community-Based Health Financing*. Bethesda, Maryland: Partners for Health Reform*plus*, Abt Associates Inc.

Berer, Marge, and Ravindran, T.K.S., eds. 1999. "Preventing Maternal Mortality; Evidence, Resources, Leadership, Action." In *Safe Motherhood Initiatives: Critical Issues*. London, Blackwell Science Limited. 127-136.

Center for Reproductive Rights and Association des Juristes Maliennes. *Claiming Our Rights: Surviving Pregnancy and Childbirth in Mali*.

Clemmons, Lynne and Coulibaly, Yaya. 1999. *Cultural Resources and Maternal Health in Mali*. World Bank, Indigenious Knowledge (IK), No. 12.

Clift, E. 2001. *Information, Education and Communication: Lessons from the Past; Perspectives for the Future*. World Health Organization (WHO) Occasional Paper.

Donnay, F. 2000. "Maternal survival in developing countries: what has been done, what can be achieved in the next decade." *International Journal of Gynecology & Obststrics* 70: 89-97.

Dmytrackzenko, Tania, Rao, Vijay, and Ashford, Lori. 2003. *Health Sector Reform: How it Affects Reproductive Health*. Population Reference Bureau.

Family Care International. 1998. *Safe Motherhood Fact Sheet: Skilled Care During Childbirth*. http://www.safemotherhood.org.

Gage, Anastasia. 1998. "Premarital Childbearing, Unwanted Fertility and Maternity Care in Kenya and Namibia." *Population Studies, A Journal of Demography* 52: 21-34.

Gamble Kelley, Allison, Kelley, Edward, Simpara, Cheick, Sidibé, Ousmane, and Makinen, Marty. 2001. *Reducing Barriers to the Use of Basic Health Services: Findings on Demand, Supply, and Quality of Care in Sikasso and Bla*. Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc.

Gelband, H., Liljestrand, J., et al. 2001. "The Evidence for Interventions to Reduce Maternal and Neonatal Mortality in Low and Middle-Income Countries." Commission on Macroeconomics and Health. CMH Working Paper Series. WG5 Paper No. 5.

Graham, Wendy and Hussein, Julia. 2004. "The Right to Count." *The Lancet*. Vol. 363: 67-68.

Magadi, M., Zulu, E., and Brockerhoff, M. 2003. "The Inequality of Maternal Healthcare in Urban sub-Saharan Africa in the 1990s." *Population Studies, A Journal of Demography* 57(3).

Magadi, Monica. Date unknown. *The Inequality of Maternal Health in Urban Sub-Saharan Africa*. Social Statistics Research Centre, Applications and Policy Working Paper.

McDonagh, Marilyn. 1996. "Is Antenatal Care Effective in Reducing Maternal Morbidity and Mortality?" *Health Policy and Planning* (111): 1-15.

Mekonnen, Yared and Mekonnen, Asnaketch. 2002. *Utilization of Maternal Health Care Services in Ethiopia*. Calverton, Maryland, USA: ORC Macro.

Moore, K. Mona. 2000. "Safer Motherhood 2000: Toward a Framework for Behavior Change to Reduce Maternal Deaths." *Community Works. A Technical Resource Packet*. WRAI Document

Novartis Foundation for Sustainable Development. 2004. *Basic Health Care Project for Mothers and Children in Sikasso, Mali*.

Owino, Binter. 2001. "The Use of Maternal Health Care Services: Socio-economic and Demographic Factors – Nyanza, Kenya." *Demographic Studies* 21: 81-122

Pathmanathan, Indra et al. 2003. *Investing in Maternal Health: Learning from Malaysia and Sri Lanka*. World Bank, Human Development Network Health, Nutrition and Population Series.

Population, Health and Nutrition Information Project. 2002. *PHNIP Country Health Statistical Report: Mali*. March.

Save the Children. 2001. *State of the World's Mothers 2001*.

Schneider, Pia, and Dmytrackenzo, Tania. 2003. *Improving Access to Maternal Health Care through Insurance. Insights for Implementers*. Bethesda, Maryland: Partners for Health Reform*plus*, Abt Associates Inc.

Sondo, B. et al. 1997. "Le Coût Financier des Soins de Santé: Enquête aupres de Femmes ayant eu un Accouchement a Risque." *Cahiers Santé* 7: 33-7.

Stewart, M.K. et al. 1997. *Maternal Health Care*. DHS Comparative Studies No. 25. Macro International Inc.

Tinkler, A. et al. 2000. *Improving Women's Health: Issues and Interventions*. World Bank. Unpublished.

Tinkler, A., Koblinsky, M., et al. *Making Motherhood Safe*. 1994. World Bank Discussion Paper 202.

The White Ribbon Alliance for Safe Motherhood - India. Facts and Figures. www.whiteribbonalliance-india.org.

World Health Organization and UNICEF. 1996. *Revised 1990 Estimates of Maternal Mortality: A New Approach by WHO and UNICEF*. Geneva: WHO.